REMARKS:

The claims have been amended to ensure that the invention is properly defined in a manner which patentably distinguishes over the prior art of record.

As mentioned previously, applicant's invention is a two-stage, actively controlled motion isolation system including a first stage for mounting in an aircraft for attenuating low frequency, large amplitude displacements of a gravity gradiometer relative to a flight path ideal to the measurement of gravity gradient, and a fine or second stage isolation mount carried by the coarse stage isolation mount in supporting the gradiometer for attenuating high frequency, small amplitude vibrations of a gradiometer relative to an aircraft and consequently relative to a flight path ideal to the measurement of gravity gradient.

The Kienholz patent does not disclose a combination of elements adapted to isolate a payload from large amplitude displacement of an aircraft relative to an ideal flight path.

Kienholz discloses an apparatus including:

(a) a platform or payload 3;

(b) actuators 5 which incorporate vertical voice-coil actuators (see column 9, lines 2 to 8) for supporting the payload 3 and applying stabilizing vertical forces thereto; and

(c) horizontal voice-coil actuators 21 connected to the payload 3 for applying stabilizing horizontal forces thereto.

Flexures 19 in the actuators 5 permit only limited (~ 1 inch) horizontal movement of the payload 3. All of the actuators 5 and 21 used to control limited movement (vibration) of the payload are connected to the platform.

In contradistinction, the system of the present invention, as claimed in new claims 35 and consequently in each of claims 36 to 42, includes a platform, which is part of a coarse stage isolation mount, and a fine stage isolation mount carried by the platform. The coarse stage isolation mount attenuates large displacements of the gradiometer relative to an ideal flight path. In order to be able to attenuate large displacements, the platform must be movable with respect to three orthogonal axes. Such movement is effected using translation stages supported by rail means for movement along the three orthogonal axes and drive means for moving the translation stages along the rail means. There is nothing in Kienholz which could be described as "rail means" supporting translation stages for movement along three orthogonal axes. As mentioned above, the flexures 19 in the actuators 5 of Kienholz permit only very limited movement of the Kienholz platform or payload 3. Attenuation of large displacements of the aircrafts from an ideal flight path is not possible with the Kienholz apparatus. Kienholz is basically concerned with attenuating vibrations of various frequencies and not with movement of an aircraft from an ideal flight path.

Moreover, Kienholz does not teach the use of a coarse stage isolation mount including a platform which carries a fine stage isolation mount, claimed in each of apparatus claims 35 to 42 of this application. The platform or payload 3 of Kienholz is intended to carry an instrument, but does not carry a fine stage isolation mount.

Claim 36 introduces details of the coarse stage isolation mount. There is nothing in Kienholz resembling the first, second and third frames or the first, second and third rails claimed in new claim 36.

New claims 37 to 42 are directly or indirectly dependent on new claim 35, and accordingly are believed to patentably distinguish the present invention from Kienholz for reasons set out above.

New claim 43 calls for a method of obtaining fine resolution gravity gradient data including transporting a gravity gradiometer on a fine stage isolation mount, which is carried by a platform of a coarse stage isolation mount in an aircraft experiencing low and high frequency accelerations and displacements from a flight path ideal to the measurement of gravity gradient. As stated above, Kienholz does not use a fine stage isolation mount carried by a platform of a coarse stage isolation mount as claimed in the first subparagraph of new claim 43. Moreover, Kienholz does not isolate, in coarse stage, the gradiometer from displacements of the aircraft by sliding the platform and the fine stage isolation mount along three orthogonal axes relative to the aircraft in response to large displacements of the aircraft relative to the ideal flight path, as claimed in the second subparagraph of new claim 43.

New claims 44 to 48 are directly or indirectly dependent on new claim 43, and accordingly are believed to patentably distinguish the method for the reasons stated above with respect to claim 43.

Early and favourable reconsideration of this application is requested.

Yours sincerely,

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